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貴州仁怀一爬行动物的新鉴定和另一可能产自中国的魚龙化石*

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1960年曾在一短篇报导中简单地就产自贵州仁怀茅台、新桥月亮田两块石板中所含化石加以初步鉴定当作可能为幻龙化石，未定名称。这一文发表不久就接到瑞士愁內溪孔施乃德教授来信，指出这化石可能不是幻龙而为鱼龙。直到最近我有机会研究一些新的幻龙和鱼龙化石，才有机会把仁怀标本再为观察一下，结果认为孔施乃德先生的意见是正确的。事实上仁怀的鱼龙，为我国发现的第一个鱼龙化石，因此把原标本，重新再鉴定描述一下是很值得的。笔者对此谨向孔施乃德先生致谢。

化 石 記 述

目 鱼龙 Ichthyosauria

属 混鱼龙 *Mixosaurus*

茅台混鱼龙 *M. maotaiensis*, 新种

正型标本：一块黑灰色石灰岩上含有骨骼之一部分。第二块较小，只有一些肋骨。二者具有同一野外号码，有可能为同一个体。

层位与地点：中三迭统下部（依野外观察）；贵州，仁怀茅台、新桥月亮田。野外号 F. 2158，室内编号 V. 2468。

特征：见下结论部分。

描述：关于第一块，除了最下部的一肋骨外其他骨均见1960年文中所附图版。这些骨骼另绘出，见图1，但若干骨重作鉴定。

在该图的左上角，有一片保存不好的印痕，极可能是骨骼造成的，但未能鉴定。似乎为头骨后部分，未能肯定。

脊椎(v)　在乌喙骨和锁骨上端的两脊椎骨，保存最好，双凹很显著，并非完全圆形，长而直的一边为上边（在左乌喙骨上者的右侧，另一在下侧）。直径约为7.5毫米。此两脊椎附近，上两肋骨以下的若干骨，有的可能为破了的脊椎骨，或者其斜面，有的为肋骨顶端。

肋骨(r)　除上述可能的肋骨外，共有八条保存较好的肋骨，其中只有一条未见于前发表的图版上。上端接近水平的两条，和中部较直立的五条中的一条，具有顶端，虽然较

* 1965年8月20日收到。

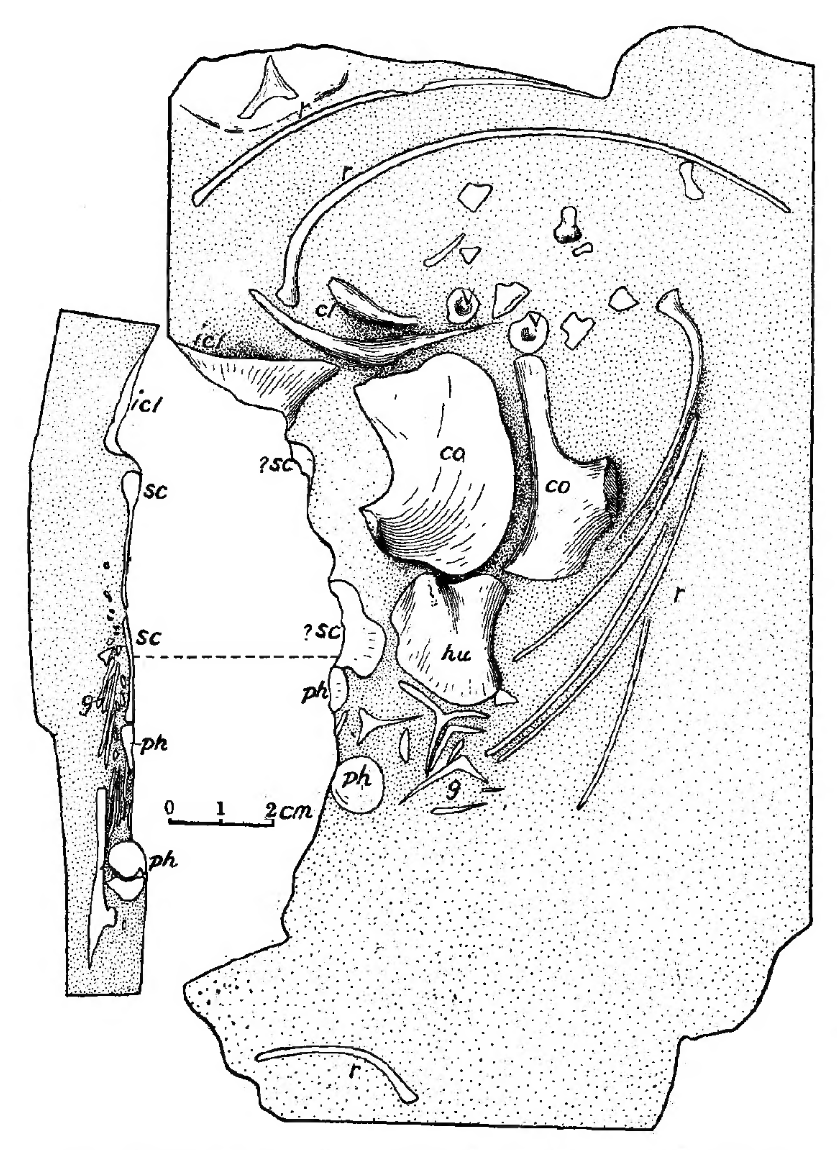


图 1　茅台混鱼龙，正型，1960 年文的图版 I 重绘。详看正文。左侧表示原标本左侧断裂处的一些骨。2/3 原大。

Mixosaurus maotaiensis sp. nov. Type specimen drawing from the original slab published in 1960 Plate I. Abbreviations and details see text, the part showing on the left of the figure is the breakage with bones of the left side of the slab. 2/3 nat. size.

宽，但分头仍不很清楚。肋骨较细而相当弯曲。最下部的一肋骨较粗，为单一头。上端第二肋长 99 毫米，第一(从左计)直立的肋骨顶宽 6 毫米。

第二块上所示的一些骨，多数也似为肋骨。作为腹肋显然太大太长了一些。共有四对作较有次序的排列，当为自然的排列。

第一块上肋骨的次序和准确位置不易判定。上部和中部的那七个肋骨可能为背部的。而最下的一个可能为腰部的。第二块上的肋骨也可能较靠后部。

腹肋(g) 第一块的肱骨下有一些腹肋V形排列，很象维曼所述的混龙(1912, Pl.XI, fig.8)。在这一块左边的断面上也有一些腹肋挤在一起。第二块上靠左边也有一些挤在一起的棒状骨，也可能为腹肋。

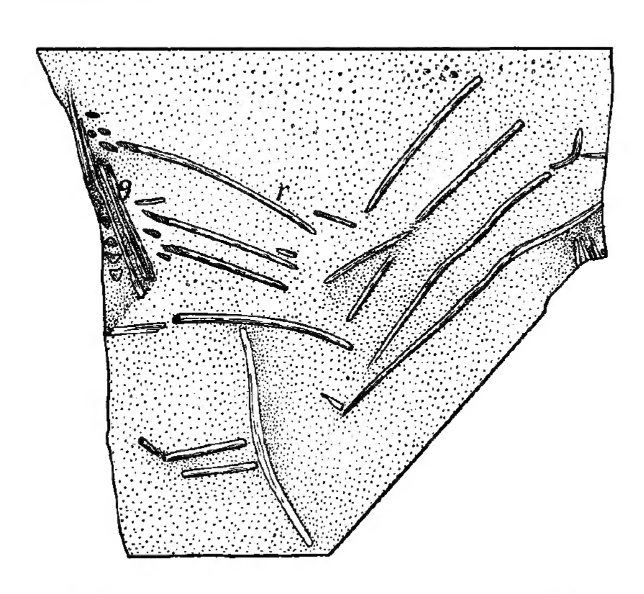


图2 茅台混鱼龙，与上一标本同地发见的另一标本，具有肋骨，腹肋等。2/3原大。
Mixosaurus maotaiensis sp. nov. Another slab with bones, ribs and gastralia found together with the preceding specimen. 2/3 nat. size.

锁骨(cl) 两锁骨均位于两乌喙骨之上，紧靠在乌喙骨上的那一个，较为完全。可能为右侧的，构造较特别，因沒有中侧加粗部分，而代之以较尖形状。全骨较为弯曲，长55毫米，最宽处7毫米。另一锁骨两端较破。

间锁骨(icl) 此骨之后端不幸已破，两边也稍有损坏。但其三角形轮廓可以清楚地看出。暴露之面较凹，当为背侧。上缘较直。宽33毫米。

乌喙骨(co) 完全露出来的一个为右侧的。左边者一部分露出。长42毫米；宽27毫米。这一骨也似和这一属其他种的同一骨不太相同。由于中侧边较直，和中前部较扩展，所以全骨作矩形轮廓。关节部分相当硕大。

肩胛骨(sc) 在下述的肱骨左侧和边上的另外一骨，可能是肩胛骨，但因太破难以确定。

肱骨(hu) 此骨紧位于右乌喙骨下，为右侧。此骨一般形状和混龙相近，但较短而宽。长26毫米，近端宽18毫米，中宽21毫米，远端宽21毫米。

足骨(ph) 共有四个，均在第一块上。在腹肋下的一个作六边形轮廓，直径10.5毫米，因紧位于尺骨和桡骨下，显然属第一排之骨。另一个位于上述所谓那一肩胛骨之下，还有两个位于左边破裂断面，均为指骨，作扁圆形。这些指骨的确切位置，不易判定。

鉴定与结论 所有第一块上的骨，均属于一个体。第二块者不怎么可靠，也可能与之同一个体，也可能虽非一个体，而为同一种无疑。由各已知骨的性质来看，为一鱼龙无疑。其大小和一些性质很象欧洲的角混鱼龙(*Mixosaurus cornalianus*)。实际上各骨和这一种

相象的程度，使我们认为归于这一属，也无问题。但是作为种讲，仍然有相当区别，如中间锁骨上较直，板状的乌喙骨和短而宽的肱骨等。因而定一新种，名曰茅台混鱼龙，其特征如次。

大小和角混鱼龙差不多，脊椎骨深双凹式，前部肋骨头不显著的分开，后部肋骨头只有一个。锁骨无内侧原结，间锁骨前缘较直。乌喙骨作矩形轮廓。肱骨短而宽。

仁怀鱼龙为我国首次发见的鱼龙。西藏鱼龙，比贵州的大的多，属于另一科。下述的鱼龙脊椎也较大。

产茅台鱼龙的地层被认为是中三迭统下部。其较准确的层位还不清楚。在目前也很难和其他各地产幻龙的地层相对比，因为两者未在同一地点发见过。无论如何看来我国的中三迭世是一富于水生爬行动物的时代。为了进一步把生物和地层搞清楚，很值得重视。

可能产自中国的另一鱼龙

上海自然博物馆筹备处保藏有两节连在一起的脊椎骨。标本上符号为 P.A-7/P.686，其层位和地点不详。承该处谭治同志借给我们研究，特为感谢。

脊椎骨为双凹式。凹入较弱一面，也就是侧面的肋骨接触点近边缘的一面，当为前端，骨全部石化，作灰黑色。上部神经弧部分缺失。脊椎中间未十分收缩，微作左右延伸。在右侧，横突和副突关节处很清楚位于近前缘处。副突实际上就在前缘边上，而横突约三毫米，靠后一些，因而成斜的排列。所有这些都较为升起一些，在左侧突起不清楚而代以粗的隆起的东西，此在第一脊椎尤为显著，这当为一种病态发育。脊椎腹侧很光滑。背侧较直，中有光滑宽沟为神经弧之底。两脊椎腹侧总长 52 毫米；前者长 25 毫米，后者 27 毫米。前者宽 64 毫米，后者 59 毫米。前者高 52 毫米，后者 55 毫米。

两脊椎之特性表示无疑为鱼龙的脊椎。 由横突和副突关节面判断可能为背前部脊椎。

此二脊椎的产出地点很有疑问。如果在我国未发见过鱼龙化石，我们可以认为这些东西是从外国带来的。但现在在中国不止一地点发见了有鱼龙化石，所以这些化石很大可能产于我国。这问题至少目前不能确定。

由于这个原因，我想目前对这个标本的进一步鉴定和讨论是不必要的。

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ON A REVISED DETERMINATION OF A FOSSIL REPTILE FROM JENHUI, KWEICHOU WITH NOTE ON A NEW ICHTHYOSAUR PROBABLY FROM CHINA

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In 1960 a short note was published of two slabs containing some fragmentary and scattered bones which were considered as probable nothosaurian origin. Soon after its publication, Prof. Dr. E. Kuhn-Schnyder kindly wrote to me and suggested that these remains may be a mixosaurian. During my recent study on the new nothosaurs and ichthyosaurs from China, I got a chance to see more carefully these specimens from Jenhui and am convinced that Dr. Schnyder's suggestion is correct. Since this is actually the first record of ichthyosaurian in China, it is worthwhile to describe these remains again. I wish also to express my deep appreciation to Dr. Schnyder for his generosity and correspondence.

DESCRIPTION

Order Ichthyosauria Blainvlle 1835
Family Mixosauridae Baur 1887
Genus *Mixosaurus* Baur 1887
Mixosaurus maotaiensis sp. nov.

Type Two slabs of dark gray limestone with part of a skeleton, both bear the same field number and exactly the same mode of preservation and thus belong probably to the same individual.

Horizon and locality Lower Middle Triassic from Yueliangtien, Hsinchiao, Maotai, Jenhui, Kweichou. Field number F.2158. Cat. No. V. 2468.

Diagnosis See the conclusional part *infra,* P. 374.

Description Slab 1. With the exception of a broken rib on the lower part of the slab not showing in the Plate I of 1960 the other bones are the same. They are re-drawn in fig. 1, but with the revised determination as shown in the abbreviations.

On the left and upper corner of this figure there is a badly preserved impression of certainly organic origin but failed to give a precise determination. It may represent a part of the skull but difficult to be sure.

VERTEBRAE (v). The two vertebrae immediately above the coracoids and the clavicles are well preserved. They are deeply amphycoelous. The outline of the vertebrae is not perfectly rounded. The longer and straight border indicates the side in connection with the neural arch (in the one on the top of left coracoid, it is on the right side and the other one on the lower side). Diameter, ca. 7.5 mm. The other pieces near the two vertebrae are less sure. Some of them are the vertebrae in broken state or in oblique position, but most of them seem to be the head (surely between the two vertebrae) and fragments of ribs.

RIBS (r). Besides the doubtful ribs already mentioned there are eight more or less well preserved ribs in the main slab as shown in the previous plate and the sketch in fig. 1. (the one near the bottom is not appeared in the plate). The two which nearly in horizontal position and one of the five vertical ones show the proximal end which is rather broad but the division of the two facets can hardly be separated. They are all slender and gently curved. The one on the bottom is rather thick and single headed. Straight length of the second horizontal one, 99 mm. Breadth of the head of first vertical (counting from the left) rib, 6 mm.

Most of the bones showing in the second slab (fig. 2) are apparently also ribs. They are too long and large for gastralia. Four pairs of them are arranged in rather symmetrical manner and evidently close each other.

It is difficult to determine the exact position of those ribs but those on the upper and middle part of the main slab are most probably the dorsal ones and the one on the bottom of the same slab represents the thoracic one. Those on the second slab are probably also posterior in position.

GASTRALIA (g). Some of the gastralia are seen below the humerus. They show the same structure as those better preserved in *Mixosaurus cornalianus* (Wiman, 1912, Pl. XI, fig. 8). On the left breakage, there are more such bones but depressed and crowded together. On the left border of the second slab the crowded rod-like bones may be also the gastralia.

CLACIVLE (cl). Two clavicles are located on the top of the coracoids. The one immediately above the coracoid is complete and probably the right one. It is a bone quite peculiar in structure and without the characteristic median thickening end. It is long and weakly curved. Length ca. 55 mm; maximum breadth, 7 mm.

INTERCLAVICLE (icl). Only the posterior process is broken. The lateral border is also slightly damaged, but its triangular outline can be easily recognized. The exposed concave side is certainly the dorsal aspect. Anterior breadth, 33 mm.

CORACOID (co). The fully exposed coracoid is the right one and the left one is only partly shown. Length 42, breadth 27 mm. This bone differs also remarkably from that of the other forms of the genus. It is more rectangular in outline by the near straight

median border and the expansion of the median and the anterior part of the bone. The articulated condyle is especially strong.

SCAPULA (sc). There is no sure presence of this bone. But the broken bone left to the humerus described below and the border of another one may indicate such element.

HUMERUS (hu). This bone lies immediately below the right coracoid. It is a right one. This bone is characterized by its comparatively shortness. Length, 26 mm; proximal breadth, 18, middle, 21, and distal 21 mm. Comparing with that of *Mixosaurus cornalianus* it is broader but very similar in general shape.

HAND BONES (ph). There are at least four carpals and phalanges. Two can be seen from the main surface of the slab 1. The one below the gastralia is completely preserved. It is rather hexagonal in outline and 10.5 mm in diameter. It belongs certainly to the row immediately below the ulna and radius and may be the intermedium or radiale. The other one just below the supposed scapula is partly broken. The other two can be seen from the lateral breakage which are actually lying near the first one. The last three are the phalanges but their exact position is not certain.

Conclusion and determination All the preserved various bones of the main slab represent certainly one individual. Those of the second slab are not quite sure but belong certainly to the same form. As showing clearly by the features of those bones we have to deal with an ichthyosaurian. Its size and other features are quite close to *Mixosaurus cornalianus.* In fact they are so close to the mentioned form that we feel that the Chinese form belongs certainly to the genus *Mixosaurus.* Yet, in the latter form the upper border of the interclavicle is straight, the more elongated clavicle, the plate formed coracoid and the shortness of humerus are features sufficiently characteristic for erect a new species for which the name *Mixosaurus maotaiensis,* sp. nov. is introduced, its diagnosis is given below:

Size about that of *M. cornalianus.* Vertebrae deeply amphycoelous. Anterior dorsal ribs incipiently divided. Posterior ones single headed. Clavicle with out median thickening. Interclavicle triangular with the anterior border straight. Coracoid broad with rectangular outline. Humerus short and strong.

This is the first record of a ichthyosaur in China. The ichthyosaur from Tibet is too large for a close comparison. The doubtful vertebrae of other ichthyosaur will be noted below.

The age of the ichthyosaur from Kweichou is believed to be the early Middle Triassic. Its exact level is, however, unknown, as the association with the invertebrate fossils is not clear. The same difficulty is for the exact synchronizing the present fossil with the known localities with nothosaurs. In any way, it seems clear that the Middle Triassic of China is going to be a key period for better understanding not only the vertebrate palaeontology but also for further correlation of those beds as well.

NOTE ON A NEW ICHTHYOSAUR PROBABLY FROM CHINA

There are two consecutive vertebrae kept in the Shanghai Natural History Museum (Preparatory Committee) with the label indicating only P. A.-7/P.686. The horizon and locality of them are obscure. Thanks to Mr. C. Tan of the Museum I was trusted to make a determination of these interesting fossils.

The two vertebrae are connected firmly together. They are typically amphycoelous. The more weaker depressed side with the lateral facets lying near the margin is believed to be the anterior end. The bone is completely mineralized and greyish black in colour. The neural arches are broken. The centrums are slightly transversally extended. They are not constricted. The facets of the diapophysis and parapophysis are clearly shown in the right side (according to the supposed orientation). They lie more to the anterior end. That of the parapophysis practically reaches the anterior margin while that of the diapophysis is situated some three milimeters behind the anterior margin. All the facets are slightly elevated. On the left side the facets are not so clear and marked by rough projecting substances, especially the anterior one. This is certainly a sort of pathological development. The ventral side is perfectly smooth. The dorsal side is rather transversally straight with smooth bottom of the neural canal. Total length of the two measured from the ventral side, 52; the same of the anterior one, 25; and the second one 27. Breadth of the anterior one, 64; posterior one 59. Height of the centrum, anterior one 52, of the posterior one 55 mm.

The structure of the vertebrae indicates undoubtedly that they are certainly an ichthyosaur. The position and the nature of the diapo- and parapophyses indicate that they belong to the anterior part of the dorsal column.

The exact locality of this interesting specimen is unfortunately doubtful. If there was no record of the presence of ichthyosaurs in China we would think that the specimen was brought from abroad. But now we have the indication of the presence of such fossils, these vertebrae might have occurred in China (there the middle marine Triassic Beds and even later deposits are widely distributed). For these reasons I would not like to go further in discussing the age and other problem relating to this fossil at present.



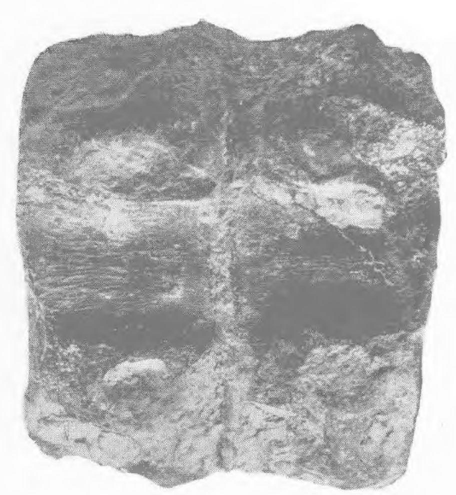
侧　视



前　视



后　视



上　视

来历不明之两魚龙背椎骨，原大